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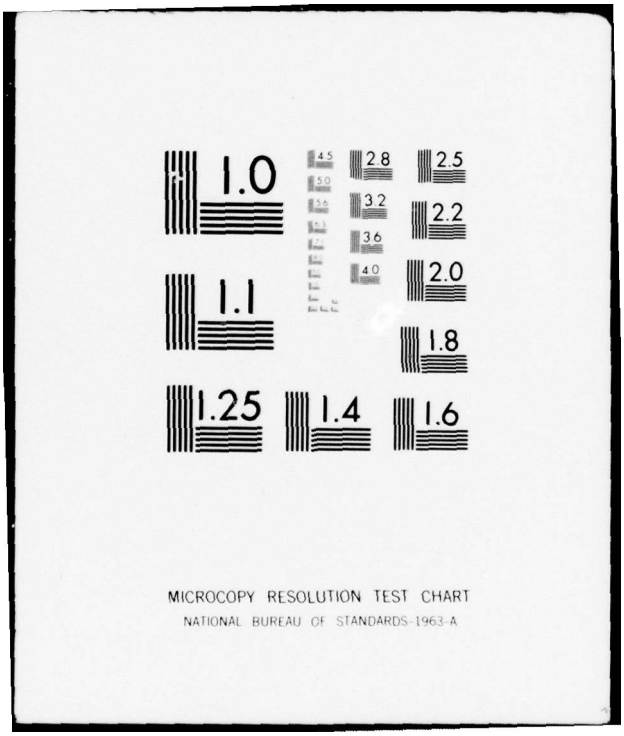
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STUDENT RESEARCH REPORT

CPT Dennis J. Quinn

EFFECTS OF VARIOUS TERRAIN REGIONS ON TACTICAL RECONNAISSANCE OPERATIONS; A SOVIET VIEW

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EFFECTS OF VARIOUS TERRAIN REGIONS ON TACTICAL RECONNAISSANCE OPERATIONS: A SOVIET VIEW

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FOREWORD

This research project represents fulfillment of a student requirement for successful completion of the overseas phase of training of the Department of the Army's Foreign Area Officer Program (Russian).

Only unclassified sources are used in producing the research paper. The opinions, value judgments and conclusions expressed are those of the author and in no way reflect official policy of the United States Government; Department of Defense; Department of the Army; Department of the Army, Office of the Assistant Chief of Staff of Intelligence; or the United States Army Institute for Advanced Russian and East European Studies.

Interested readers are invited to send their comments to the Commander of the Institute.

RICHARD P. KELLY
LTC, MI
Commander

SUMMARY

This paper attempts to describe and to a lesser degree to analyze the effects which various geographical regions have on Soviet tactical reconnaissance operations.

It is based on Russian language sources openly published in the Soviet Union. This essay includes descriptions of basic, tactical collection methods and how these methods respond to employment in different terrain areas. This paper concludes with a brief subjective evaluation as to how successfully Soviet tactical reconnaissance units cope with the peculiarities of various terrain conditions.

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INTRODUCTION

"A most important danger in war" said Lenin, "is to underrate the enemy and be satisfied in the knowledge that we are stronger. This is such an important danger because it can lead to defeat."[1] This quote reveals that from the very beginning the Red Army understood the need for good intelligence. The Soviet Army of today still emphasizes this need for sound intelligence on the enemy. In referring to the above quote, Major General of the Soviet Army R. G. Simonyan states, "Lenin's wise directive continues to have great significance in our age."[2] General Simonyan, a Doctor of Military Science and professor at the Frunze Military Academy in Moscow, has written several recent books on Soviet tactical reconnaissance operations. It appears that he has developed among his readers a growing interest in reconnaissance theory and methodology as more articles on tactical intelligence operations by authors from lieutenants to generals are now appearing in Soviet military journals. This increased interest is considered important, as open discussion of reconnaissance theory and methodology will most certainly result in increased awareness of its importance to the low level commander. He will come to believe that intelligence can and will help him accomplish his mission under any circumstances.

In order to assist the tactical commander in accomplishing his mission, Soviet reconnaissance units must be able to

perform under diverse terrain and weather conditions. The Soviet Army feels that it has developed the theory and methodology to do just that. Therefore, this paper is designed to present the Soviet view as to how tactical reconnaissance units overcome the limitations of diverse geographical areas in order to accomplish their combat missions.

SOVIET TACTICAL RECONNAISSANCE COLLECTION CAPABILITIES

Before discussing the effects which terrain or specific geographical conditions have on the collection of information in tactical operations, it is first important to be acquainted with the Soviet military definition of intelligence and with the various Soviet methods used in the tactical collection of the intelligence information.

"Intelligence", as defined by the official Soviet military dictionary, "is one of the most important aspects of military activity designed to obtain information about the enemy, weather, terrain, and other factors which are necessary in order to make decisions before the beginning or during the conduct of military operations."[3] Further, the dictionary states that the basic principles for the conduct of intelligence are that it must be continuous, aggressive, timely, and accurate. Finally, this source emphasizes that obtaining intelligence is one of the most important duties of the commander at every level.

As can be seen in the above definition, the Soviet concept of tactical intelligence is not very different from

that of the United States. Just as warfare is a universal art, the art of intelligence also possesses its universal characteristics. However, the methodology of intelligence operations vary from army to army. Although this paper may at times note the differences between Soviet and U.S. tactical intelligence operations, this paper is not meant to be a comparative study of these differences. Rather it is meant to be an informative presentation of the Soviet view on the effects of terrain conditions upon low level tactical reconnaissance or intelligence collection operations.

However, before discussing the ways in which different terrain conditions affect the Soviet collection capability, it is first important to know the various means of collection which are available to the tactical commander. In discussing tactical intelligence or reconnaissance operations, Soviet sources usually list the following methods as their primary means of collection. The definitions and descriptions of these methods are taken directly from the official Soviet military dictionary.

Observation Posts. Groups of usually two to five men deployed to the front and/or along the flanks of units in areas which provide a general view of contested terrain with special emphasis on probable areas of the greatest enemy activity. At night and during periods of limited visibility these posts are designated as listening posts.[4]

Raids. A method of ground reconnaissance operations. The raid consists of an undetected approach to the objective,

observation of the objective, then an attack, silent or with weapons, on the objective. The usual purpose of this operation is to capture enemy prisoners, documents, or weapons.[5]

Ambushes. A method of ground reconnaissance operations. The ambush unit positions itself, usually behind enemy lines, along the most probable routes of movement by single or small groups of enemy soldiers. These ambushes are conducted in order to capture prisoners, documents, weapons or other special interest items of enemy equipment.[6]

Patrols. A method of ground reconnaissance to obtain intelligence on enemy and terrain located to the front or the flanks of Soviet units of company or battalion size. These patrols will not usually be larger than a platoon reinforced with its own fire support. The reconnaissance patrol has the mission of quickly locating the enemy, establishing the character of his activity and determining the presence of an enemy nuclear capability or other means of indirect fire. Following its acquisition, the patrol must quickly relay this information to its immediate commander. The acquisition of this information may be accomplished by either observation or contact.[7]

Reconnaissance in Force. A method of ground reconnaissance by which information about the enemy is acquired through friendly initiated contact. Reconnaissance in force is usually only conducted when other means of reconnaissance are unable to obtain the required information about the

opposing enemy force. Additionally, reconnaissance in force can only be conducted under the authority of that commander who will provide the reconnaissance unit with an adequate means of reinforcement.[8]

As can be seen by the Soviet definitions and descriptions of these tactical operations, they are intelligence oriented in relation to the purpose of their employment, i.e., to acquire information on the enemy, weather and terrain. Although information on the organization, equipment and methods of operations of these units is important, such data is outside the parameters of this paper. For a basic description and analysis of these activities the reader is referred to "Soviet Combat Intelligence and Reconnaissance", by LTC Raymond E. Zickel, published by US Army Institute for Advanced Russian and East European Studies. In addition to reconnaissance methods listed above, it is recognized that Soviet artillery, engineer and communications units also possess intelligence collection capabilities. However, these means are considered to be technical in nature and not of the operationally oriented methods of the combat unit to be discussed here. As a result, the effect of terrain on these collection means, although recognized as important, will not be addressed in this paper.

TEACHING THE EFFECTS OF TERRAIN ON TACTICAL RECONNAISSANCE OPERATIONS

As previously discussed, the object of Soviet tactical intelligence operations is to obtain information on the

enemy, weather and terrain. Of course each one of these factors, i.e., enemy, weather or terrain, can, to a greater or lesser degree, either aid or hinder the gathering of information on itself or on one or both of the other factors. In teaching what effect terrain has on the collection of information, the Soviets have divided ierregular terrain areas into five general groups. These five areas are: the northern or polar regions, desert or semi-desert regions, mountainous regions, wooded areas and interestingly, built-up areas such as large towns and cities.

Analysis of available information indicates that before teaching reconnaissance personnel about the effects of irregular terrain on their units' operations, each man must already be well versed in the theory and methods of Soviet ground reconnaissance under normal terrain and weather conditions. Additionally, he should also have a general knowledge of Western tactical theories and methods of operation. Having thus achieved a sound basis in normal recon operations, the Soviet reconnaissance soldier is instructed on the influence of irregular terrain conditions on his normal methods of operation. This instruction appears to be presented in three phases: First, information on the particular terrain area; second, information on the peculiarities of enemy operations in this particular terrain; and finally, information as to how these peculiarities of terrain and enemy operations affect basic Soviet reconnaissance procedures.

In reference to the first phase of this training, i.e., information on unusual terrain, readings in open Soviet sources reveal that detailed and thorough knowledge of these various terrain areas is presented to and must be retained by each individual reconnaissance soldier. However, some of this information is so detailed and complicated that the individual reconnaissance soldier would have to be a geologist to adequately understand, correlate, and utilize this information in his everyday activities. Information of this type might include soil composition, atmospheric pressures, temperature ranges and what affect the interaction of these factors may have in other areas, such as fuel consumption for example. It is highly unlikely that the average reconnaissance soldier possesses such knowledge. However, the presence of such data in tactical writings indicates that such well-informed reconnaissance personnel are the ultimate goal of Soviet training in this area.

The second phase of this training, i.e., information pertaining to Western military operations in irregular terrain conditions, reveals a sound knowledge of Western tactical theory and methods of operations. It is interesting to note that Soviet writers will even refer to Western field manuals while discussing enemy operations. One Soviet source even acknowledges the use of direct quotes from U.S. FM 100-5, Operations of Army Forces in the Field.[9] Although it is improbable that even the average Soviet officer, much less the average soldier, possesses such knowledge in detail, it

is probable that reconnaissance personnel feel that such information on Western methods of operation is essential to the proper performance of their mission.

Finally, in the last phase of this training, the Soviet reconnaissance soldier learns how the natural conditions of, and enemy operations within the various terrain areas influence his collection capabilities. This information is presented at a rather advanced stage in the training of the Soviet soldier in reconnaissance operations. Already he has learned the basics of reconnaissance operations and their employment under normal terrain conditions. Then he has studied the peculiarities of irregular or unusual geographic areas. Further, he has been informed on how the enemy can be expected to change his operational procedures as a response to the peculiarities of a particular geographical area. Finally, the Soviet soldier must learn how he, as an individual reconnaissance man or as leader of a reconnaissance unit, must change his normal operating procedures in order to effectively counter or utilize the peculiarities of region and enemy and successfully achieve his mission. In attempting to describe Soviet thought on the effect of terrain conditions on reconnaissance operation, terrain will be divided into the previously noted five groups, i.e., polar regions, desert regions, mountainous regions, wooded areas, and built-up areas. Additionally, the reconnaissance operations considered will be limited to those previously indicated, i.e., observation, raids, patrols, ambushes, and reconnaissance in force.

SOVIET TACTICAL RECON OPERATIONS IN POLAR REGIONS[10]

Observation. Under normal terrain conditions, Soviet observation posts might be situated as far as 300-400 meters apart. However, in polar regions, this often is not so. The long and frequent periods of poor visibility, due to storms and the long polar nights frequently require posts to be no further than 50-150 meters apart. This shortened distance between posts necessitates that more men and equipment must be utilized to maintain effective observation. Additionally, these posts must be well constructed. Posts which are open to strong winds and snow will further limit visibility and more importantly adversely affect the soldier's ability to remain at his post for sufficient periods of time.

In addition to the need for more and better constructed observation posts, the numerous storms and long polar nights also make additional demands on the individual soldier. Due to the extreme cold, the soldier is not usually able to conduct observations for long periods of time and thus observers must be changed more often than under normal conditions. Additionally, the long polar nights necessitate the extended use of night vision aids contributing greatly to eye-fatigue, further necessitating quick rotation of observers. In order to maintain the sensitivity of night vision during these long periods of darkness, the Soviets stress the need for sufficient supplies of vitamin A and foods rich in vitamin A. In addition to the beneficial effect of vitamin A, Soviet

training stresses that sensitivity of night vision can be further protected by insuring that the soldier be quiet and rested during the periods when he is not actively observing.

One further difficulty is encountered in the method of observation. Under normal conditions, Soviet training emphasizes the use of easily recognizable terrain features in establishing fields of observation. However, the lack of such terrain features in polar regions makes this method quite difficult. As an alternate method, Soviet forces use azimuth readings to establish their field of observation. However, this method increases the chances that fields of observation will not overlap and that those areas between posts might be exploited by the enemy.

Raids. Soviet tactical thinking places a lot of emphasis on the use of raids to gain information under normal terrain conditions. This is also true of operations in polar regions. As an example, during a one month period in 1944 in the polar region of the Kola peninsula, Soviet forces conducted 333 intelligence operations. Of these, 227 were recorded as raids.[11] Although these figures are from World War II, Soviet military writings still emphasize the importance of the reconnaissance raid in any future war.

Again the phenomenon of the polar day and polar night affect this type of recon operation. The effect on the raid is both favorable and unfavorable. The long duration of the polar day makes pre-recon of the objective easier, but these same conditions make undetected movement toward the target

difficult. On the other hand, the polar night makes long distance recon of the objective difficult but at the same time aids in an undetected approach to the target.

Soviet reconnaissance units are also taught that while trying to determine the feasibility of a raid, they must take into account that low temperatures and cold winds will reduce the effectiveness of enemy observation posts. Additionally, the cold temperature and bulky clothing will also hinder the speed and effectiveness of enemy reserve units, which might respond to the Soviet attack.

Soviet writings indicate that raids will not usually be conducted during heavy snow or blizzard conditions or when the temperature is lower than a -25°C. Although Soviet tactical planners recognize that such conditions would assist in concealing the movements of the raiding party, they consider that the increased possibility for the unit becoming disoriented, or for an individual becoming lost, offset the advantages of concealment. However, a raid will be permitted under extremely bad weather conditions when information is really needed and the objective of the raid is between 200-250 meters from friendly lines. In these cases the reconnaissance party uses a rather simple means to assist in accomplishing the mission. The raiding party will use a line or wire which extends from their departure point to the objective with an additional 25-30 meters of reserve length. This extra length allows the raiding party to operate with a 25-30 meter

radius of the target. Following the attack on the objective, the rope is used to guide the unit back to friendly lines.

Additional factors hindering recon raids in polar regions are deep snow and lack of easily identifiable terrain features. Deep snow and ice increases the difficulty of cross-country mobility adding to the time necessary to conduct the raid. Further, due to the lack of identifiable terrain features, raiding parties must be proficient in land navigation by compass.

Finally, research indicates that Soviet theory prefers the silent raid to the combat raid. However, polar conditions often necessitate an increase in the frequency of combat raids, i.e., raids in which fire support and fire from the small arms of the raiding party are considered necessary. The existence of the long polar day and the extremely open terrain greatly increases the difficulty of approaching the objective undetected, conducting the attack silently, and then withdrawing still undetected. Thus, in polar regions, successful raids often require that strong preparatory fires be conducted against the objective and fire support implacements near the objective. As a result of the fire, the enemy, seeking cover, reduces his capability for effective observation of the approaches to his position and decisively countering the raiding party.

Ambushes. Again, as we have seen with other methods of reconnaissance, polar conditions can either assist or hinder the conduct of ambushes. Good conditions for ambushes arise

following heavy snowstorms or blizzards. At this time, the enemy must send out small groups of men to check on minefields, field obstructions, signal flares, and to resupply outposts,etc. These small groups of men provide good targets for the ambush.

However, polar regions seem to have more negative than positive aspects relative to the ambush. The greatest of these are low temperatures and cold winds. When in the ambush position, the soldier must lay on the ground for long periods of time without movement. Such activity in polar regions greatly increases the possibility of frostbite. To counter this threat, warm and bulkier clothing is worn. However, this clothing tends to degrade the efficiency of movement of the individual soldier. Additionally, in moving into the selected ambush site the ambush party leaves tracks which are difficult to cover. Such tracks might forewarn the enemy of the presence of the ambush party.

Patrols. Conditions in polar regions greatly impede the reconnaissance missions of patrols. Because of the large areas which such patrols usually cover and the mission usually undertaken, high mobility is one of their major requirements. In order to retain a certain degree of speed and mobility in snowy regions, patrols unable to use capable cross country vehicles, will often use skis, dog teams and even reindeer. Additionally, in many cases, especially in the offensive, the success of their mission depends on the unit's ability to operate without roads, while at the same time

continuing to recon the enemy, his road networks, and his avenues of retreat. However, the presence of deep snow hinders the patrol's mission, as it hinders its off-road mobility. Additionally, the open terrain assists the enemy in detecting the presence of these reconnaissance patrols. Finally, the usual bad weather conditions of the polar regions often render these missions impossible.

Reconnaissance in Force. This method of reconnaissance suffers the same general limitations from the polar conditions as do the other recon efforts referred to above. These limitations are a general decrease in unit mobility and individual efficiency due to snow, low temperatures, and cold winds.

SOVIET TACTICAL RECON OPERATIONS IN DESERT REGIONS[12]

Observation. Soviet tacticians readily realize that the open, relatively flat terrain and lack of vegetation of desert or semi-desert areas assists in the detection and identification of enemy activity. However, Soviet teaching also points out that just as other regions have negative effects on observation so do desert regions. Although flat and unvegetated terrain does make target detection and identification easier, the absence of high ground formations such as hills and ridges limit the distance of observation. Additionally, as temperatures rise, inversion and atmospheric haze increases, further lessening the range of observation. In order to counter these negative effects on observation, the Soviets emphasize the use of mobile observation posts in desert

regions. Further in an attempt to increase the distance of observation from these posts, specially manufactured sectional towers are mounted on vehicles having good cross-country mobility. Although these mobile towers provide increased fields of observation under most tactical operations, the Soviets especially emphasize their use in the offensive in order to increase reconnaissance effectiveness of the flanks.

As occurred in polar regions, the limited amount or complete absence of local terrain features make target location and/or unit orientation extremely difficult. Under these conditions, Soviet teaching suggests the use of friendly engineer constructions or even enemy structures as a means of orientation. However, when doing this, the Soviets recognize that there exists the danger that the enemy will move these structures in an attempt to disorient and confuse Soviet forces. As an alternate means of orientation and target location in desert areas, the Soviet also use artillery marker rounds. In using this method, the observation post will orient on a specially fired artillery round which on bursting emits a colored flash or smoke which is in sharp contrast with the background of the terrain. The mobile or stationary observation post then shoots an azimuth to the marker round. When an enemy target is sighted a second azimuth is shot to this target and reported back to the collection agency.

In further enhancing the results of observation under desert conditions, posts are instructed to be especially

attentive during early morning hours when desert air is extremely clear thus extending the effective distance of observation.

Raids and Ambushes. Soviet tacticians deemphasize the use of raids and ambushes in desert areas, especially during daylight hours. These reconnaissance methods are usually employed at night, dawn or dusk because desert heat is radically reduced during these periods. Although the Soviets recognize that the openness of desert terrain increases the chances for detection of these units, heat is considered as the main factor preventing their employment during daylight hours. The Soviets emphasize that not only will heat stroke and other debilitating effects of the desert sun result in the loss of the unit's capability to complete its mission, but often the unit will even lose the ability to extract itself from neutral or enemy-held terrain. Such circumstances require the further deployment of additional forces in open terrain to assist the affected unit.

Although raids and ambushes conducted at night escape the debilitating effect of the desert heat, they still encounter difficulties caused by open terrain. In addition to assisting the enemy in detection, such terrain makes it difficult for night orientation. Soviet teaching on this point suggests navigation by stars, as desert skies are usually free of clouds. Of course, the use of the compass is also recommended for night navigation to the target area.

Patrols. Soviet tacticians teach that conditions in desert regions facilitate the wide use of reconnaissance patrols. However, the Soviets are quick to emphasize that the success of such patrols, in the desert more than under any other conditions,greatly depends on the proper selection of equipment and the sufficient provision for fuel and water.

In addition to special supplies, the patrols emphasize additional operational requirements. Of special interest is the increased threat of detection and destruction by enemy aircraft. In desert areas, sky conditions are usually good, and as a result the flight time per aircraft is increased. As a means to counter this threat, Soviet recon patrols are trained to use all available weapons, to include personal side arms, in an anti-aircraft role. Additionally, in desert regions, the self-contained Soviet recon patrol may often be equipped with its own anti-aircraft weapons.

Soviet tactics also reveal that under desert conditions the self-contained reconnaissance patrol, i.e., one containing its own means of indirect fire support, may operate significantly further from the main unit, than would be normal under regular terrain conditions. The ability to operate at further distances in desert areas results from the open terrain, the increased tempo of the attack, wide maneuverability, and the increased distance capabilities of communications.

As stated above, Soviet planners place special emphasis on the importance of water in desert warfare. Many times water sources themselves become the objective of offensive

or defensive operations. Soviet thinking stresses that reconnaissance units, usually operating at great distances from major units, must be well informed on water conservation tactics. The details of such measures include only the stocking of those foods which will not increase the soldier's thirst or demand a lot of water for assimilation into the body.

In continuing their emphasis on water, Soviet planners suggest that when recon patrols are observing withdrawing enemy units, they include a representative of the medical corps. This specially-trained individual will determine if withdrawing enemy forces have contaminated water sources left behind. Such a capability may allow the recon patrol to refill its water supply, thus possibly extending the range of its operations. Secondly, quick information on contaminated water sources will allow the main unit commander additional time for possibly choosing an alternate route of advance.

Reconnaissance in Force. Soviet tactics teach that the use of reconnaissance in force under daytime desert conditions is the exception, not the rule. Soviet tacticians, reluctant to use this means of gaining information under any conditions, explain that the open terrain and clear skies of desert regions should allow other means of reconnaissance to collect all necessary information. Additionally, Soviet tacticians believe that terrain and weather conditions in desert areas allow the enemy to quickly distinguish this Soviet operation as a reconnaissance in force and not as

an actual offensive. As a result the reconnaissance operation will be summarily repulsed without obtaining the desired intelligence information.

SOVIET TACTICAL RECONNAISSANCE IN MOUNTAINOUS REGIONS[13]

Soviet military teaching defines mountainous areas as those regions where ground formations are significantly higher than the surrounding terrain. Mountainous regions are divided into three classes: low, having absolute heights from 500 to 1000 meters; medium, having heights from 1000 - 2000 meters; and high, having heights of more than 2000 meters. Mountainous regions are characterized by strongly broken terrain, thick forests, rocky ridges and peaks, ice fields and limited road networks. Weather in these regions can be severe in both winter and summer, with sudden downpours or severe snowstorms.

Observation. According to Soviet teaching, observation remains one of the most basic and widely used means of conducting reconnaissance in mountainous areas. However, mountainous areas do sharply limit the effectiveness of this reconnaissance method. Although observation posts can be situated on the military crest of the highest peaks, the ravines, gorges, canyons, steep slopes and forests located to the front of these posts sharply limit the effectiveness of their fields of observation. Usually, high mountains also exist to the sides of these posts further limiting their fields of view. As a result of these limitations, Soviet planners contend

that in mountainous regions observation posts cannot effectively view more than 30 to 40 percent of the area to their front. Thus, Soviet policy calls for the assignment of two or three posts to adequately cover one sector or field of observation.

Although the terrain and approaches located immediately below mountain observation posts are often difficult to view, the high location of these posts allows the reconnaissance units to observe deployment of the enemy to great depths, especially if the enemy is located in a valley or in plains extending out from the foot of the mountainous areas. However, even this view, resulting from favorable terrain conditions, is often limited by unfavorable weather conditions. Even when the extremes of weather conditions, such as rain and snowstorms, are not present, normal mountain cloud and fog layers will adversely affect observation. In forested mountain areas, especially during dry periods, fires constantly cause a smoky haze to hang above the wooded areas. During sunny weather, observation is difficult due to the sharp contrast between those areas in the sunlight and those areas located in the shade.

The Soviets recognize these adverse conditions of mountain regions and as a result have modified their observation methods. Where in level terrain two or three observation posts would cover a particular size or type of area, this same area in mountainous conditions is covered by five, six or possibly more observation posts. Additionally, in order that

as much of the target terrain as possible falls under effective observation, observation posts are located at various levels along the sides of the mountains and fields of observation are overlapped. Thus those areas which cannot be observed by a post at the top of a mountain can possibly come under observation of a post located 500 meters down the side of the same mountain.

Soviet teaching also emphasizes that conditions in mountainous areas facilitate the use of observation posts as listening posts. Further, it is recommended that additional specifically designated listening posts also be deployed throughout the area, especially in locations and at times when sound carries well, such as in river valleys and during early morning hours. Although such posts are common at night, their use during day is also recommended, especially under conditions of limited visibility which are characteristic of mountains (such as smoke, haze, fog, clouds, etc.). Such listening posts have the capability to detect the movement of men and machines, the construction of engineer work, the change of units, and preparation for attack. Although recognized as not always possible, it is recommended that these posts have at least one individual who understands the enemy's language.

Raids. Although raids are considered a viable means of reconnaissance in mountainous areas, Soviet forces employ them less in these areas than under normal terrain conditions. The time and the conduct of the attack, and the expertise required to

cover rough mountain terrain appear to limit the frequency with which raids are employed. Additionally, a smaller number of men participate in raids conducted in mountainous regions versus most other areas, probably because of the high degree of physical conditioning and skills required. Under usual terrain conditions, Soviet planners prefer to conduct raids during night time or periods of limited visibility. However, Soviet experience teaches that raids conducted in mountainous areas during periods of darkness do not usually achieve the desired results. Soviet tacticians explain this by stating that night in the mountainous regions is much darker than night in open terrain areas. In addition to the increased darkness, the sharp nature of the terrain makes orientation and navigation extremely difficult even with the use of the compass.

On the other hand, Soviet tacticians recognized that mountainous terrain does present some advantages to daytime raids. Although time of preparation and movement to the objective is longer and more difficult than under normal terrain conditions, mountain conditions do provide the raiding party with good cover and concealment. Additionally the numerous trails, valleys and ridges provide many concealed routes by which the party can maneuver through or by-pass certain enemy locations, while moving toward the objective. Finally, it is considered better to attack the objective from above, allowing the attacking unit good observation of defensive activity in the target area. This method also

reduces the physical effort of the attacking units. Although these conditions in mountainous areas do present some advantages to the daytime raids, Soviet planners still seem hesitant to employ them. Thus, as a result of the negative operation effects of mountainous terrain during periods of darkness and the Soviet planners' hesitancy to employ this recon method during daylight hours, raids are not frequently conducted in mountainous regions.

Ambushes. Whereas Soviet experience reveals that raids conducted in mountainous areas do not normally achieve the desired results, Soviet theorists teach that ambushes are able to be conducted with great success in these same areas. Soviet teaching states that due to the peculiarities of mountainous terrain significant intervals are supposed to exist between enemy locations, allowing Soviet ambush parties to infiltrate into enemy-held terrain. Further, the difficulty of cross-country movement forces the enemy to remain on the road and trail networks when within his own lines. This restriction of enemy units to established road and trail networks lessens the possibility of the detection of the ambush party, while at the same time increasing the number of targets which might pass through a particular ambush site. Finally, the presence of numerous terrain features such as bushes, wooded areas, rocks, etc. facilitate the selection of good ambush positions.

Patrols. Soviet theory places special significance on the operation of patrols in mountain regions. This emphasis on

results from the inability of observation posts to effectively observe the numerous concealed areas in mountainous regions. Thus, the employment of actual on-the-ground reconnaissance patrols in these areas takes on an increased importance. In actually conducting the reconnaissance, the patrols will follow most of their normal standard operating procedures. However, in mountainous conditions, the patrol's distance from its parent unit is usually less than on level terrain. Also, when moving from high to low terrain, from rocky to forest areas, from front to reverse slopes, the patrol must often stop to change its camouflage to better blend with the many different terrain backgrounds found in mountain areas. Although often mounted, the rugged terrain will many times force these patrols to dismount and conduct their reconnaissance on foot. This, of course, significantly slows down the tempo of the reconnaissance unit and more importantly, of the major Soviet unit,especially in the attack.

An additional factor limiting the effectiveness of reconnaissance patrols in mountain areas is the negative effect which the terrain has on communications. These negative effects force the recon patrol to remain closer to the main unit than it would under normal conditions or necessitates the use of several patrol vehicles or personnel to be positioned between the patrol and its main unit for relay of intelligence communications.

Reconnaissance in Force. Soviet planners support the use of reconnaissance in force operations in mountainous areas.

Its frequency of use is similar to that in normal terrain conditions. However, when employed in mountainous regions, it is subject to the same general limitations as noted above for the other methods of reconnaissance.

SOVIET TACTICAL RECONNAISSANCE OPERATIONS IN WOODED AREAS[14]

Soviet writers place heavy emphasis on operations, to include reconnaissance operations, in wooded and swampy areas. It is Soviet opinion that this type of terrain covers large expanses in almost all theaters of military activity. When preparing for operations in large wooded areas, preparation must also be made for operating in the vicinity of rivers, lakes and swamps, as these terrain features are usually found in forested regions. Further, Soviet theorists place special emphasis on the use of tactical reconnaissance in wooded areas, because only units having actually covered the ground are able to give an up-to-date, accurate picture of the situation. Maps and previous reports are considered insufficient, because the terrain conditions in wooded areas can drastically change within a short period of time depending on the weather and time of year.

Observation. Vast wooded areas drastically reduce the effective range of observation posts. The Soviets counter this reduction in the distance and limited direction by increasing the number of observation posts. However, Soviet theorists realize that merely increasing the number of posts will not completely offset the limitations imposed by the wooded

terrain. Thus, they emphasize more here than in other areas, the overlap of zones of observation and the constant coordination of operations and information.

Soviet tactical planners emphasize that observation posts in wooded areas should be located in covered fox holes, with the ceiling 1 1/2 to 2 feet above ground with small windows serving as both observation and firing ports. However, the Soviets recognize that under normal wooded conditions, the fields of observation probably only extend from 60 to 80 meters during summer and possibly 120-150 meters during winter. Of course at night, even with the use of night observation equipment, fields of observation are severely limited. In an attempt to offset to some degree the liabilities of ground observation posts, Soviet teaching heavily endorses observation conducted from high, thick trees. Of course the danger of detection is greatly increased, but with maximum caution exercised by the reconnaissance man, such posts can be of great value. Even in areas where the observers cannot see down through the surrounding trees, they may detect indication of enemy activity such as smoke, exhaust fumes, etc., at great distances.

Raids. According to Soviet thought, the wooded or swampy area greatly increases the chance for success of the reconnaissance raid. The rolling, forested terrain usually allows the raiding party good concealment along its approach to the objective. Additionally, Soviet theorists believe that Western defensive tactics call for the integration of

lakes, rivers and swamps into forward defensive lines. Since large attacking Soviet forces will not be able to use these areas as routes of advance, they are only lightly or not at all occupied by enemy troops. Soviet reconnaissance units are urged to exploit this weakness by infiltrating raiding parties through these lightly defended forward areas and attacking objectives in the enemy rear, where Soviet troops will not be expected and where success will demoralize enemy forces.

Ambushes. Soviet tacticians consider wooded areas as probably the most ideal regions for the conduct of ambushes. This terrain usually offers good concealment to and from the ambush site and is not usually too difficult for cross country movement. Such regions usually contain numerous trails and road networks flanked by good areas for concealment. However, Soviet ambush parties in wooded areas are instructed to conduct the ambush from a circular formation. Such a formation will provide the ambush party with a good defensive position should they be detected by enemy elements moving cross country.

Patrols. Soviet policy, as stated in the open press, for the use of reconnaissance patrols in wooded terrain is interesting. According to Soviet teaching, in wooded areas these units are usually used only during offensive battles, following a breakthrough of the enemy's forward defense lines. Additionally, if the terrain forces the Soviet offensive to be dismounted, then these patrols also usually operate on foot.

Should the enemy conduct a quick withdrawal after a Soviet breakthrough, Soviet tacticians believe that the wooded terrain will quickly force the enemy to revert to use of main road networks for a speedy retreat. The usually small number of roads will prevent the enemy from simultaneously using many avenues of retreat, forcing him to use the few main arteries that are present. At this time as a result of prior recon efforts, Soviet patrols will immediately move to predetermined major trail and road intersections in order to conduct combat or intelligence missions such as ambushes, destruction of stores, bridges, etc., and other actions which will cause confusion and panic and thus hinder the enemy's retreat.

Reconnaissance in Force. Soviet military planners give high marks to the effectiveness of reconnaissance in force operations in vast wooded areas. It is acknowledged that these wooded areas provide good concealment for enemy deployment, firing positions, obstructions, reserves, storage depots, etc. Further the nature of concealment often prevents detection of these enemy activities by other means. Thus, since other methods of acquisition of information are usually restricted by wooded terrain, reconnaissance by force is often used, usually with effective results, to gain information on enemy deployment, fire support positions, order of battle, etc. In repulsing these Soviet reconnaissance operations, the enemy must not only use his front line forces, but usually must commit part of his reserve and reveal his fire

support positions. In order for a recon in force operation to be successful, the Soviet unit must be extremely aggressive. Such aggressiveness will force the enemy to believe it is facing a real offensive and not only a demonstration. Soviet teaching emphasizes that reconnaissance in force operations will usually meet with success in wooded regions, because the concealment afforded by the terrain hinders the enemy from making an effective intelligence estimate as to the size, capability and intention of the attacking Soviet unit.

Due to these same positive factors of wooded terrain conditions, recon by force operations are also employed as part of main Soviet offensives. Recon by force units will be designated to conduct operations against secondary portions of the front. These recon units will attempt to hold enemy forces in positions along these fronts. Additionally, they will report if enemy forces are being withdrawn from these areas to reinforce other enemy positions.

SOVIET TACTICAL RECON OPERATIONS IN BUILT-UP AREAS[15]

As a result of the Soviet Union's experiences in World War II, Soviet military planners place heavy emphasis on combat operations in built-up areas. Not only did the Soviet Army and people conduct heroic defenses of Moscow, Leningrad, and Stalingrad, but thus also launched offensive operations against German occupied cities such as Vienna, Budapest and Berlin. As one Soviet author states, "The success of our forces in city warfare was due in large part to the efficient

organization and effective implementation of reconnaissance operations."[16]

Cities and built-up areas are included in this paper as a separate type terrain area because the Soviets themselves consider this to be so. Soviet theorists teach that military operations in cities are sharply different from tactical operations in normal field conditions. These operations in built-up areas are characterized by close contact with the enemy, independent operations by small units, continuous contact day and night and difficulty in use of tanks and APC's.

Whereas in other terrain conditions, Soviet teaching seems to emphasize the preferability of on-the-spot collection of information by ground reconnaissance units, in city warfare conditons, more credibility and emphasis is placed on pre-operational information, such as maps and aerial photography. This is most probably a result of the permanent nature of the objective, the city. In this instance, the enemy does not have to be found and fixed. His location is known. Additionally the terrain conditions within the city itself will not usually change to any great degree as a result of changes in the weather or time of year. However, although maps may give the original layout of the city, information on original building density, road networks, underground systems, etc., recent aerial photographs are needed to provide latest information as to the condition of structure and road networks, enemy defensive deployment, location

of civilian concentrations, etc. However, even recent aerial photography is not enough, as one Soviet author states, "All former descriptions and accounts, maps, city plans, etc., are not able to give the commander the full information necessary to achieve his mission. Such information can only be obtained by ground reconnaissance."[17]

In conducting reconnaissance of enemy defensive positions in a built-up area, the Soviets divide their reconnaissance operations into two groups. First reconnaissance patrols and reconnaissance in force are mainly conducted in the terrain surrounding and along the immediate approach routes into the city. Secondly, once the battle rages within the built-up area, these methods of collection see only limited use, while new intelligence information is primarily collected by observation, raids and ambushes.

Observation. In built-up areas, fields of observation are usually limited both in angle of observation and in depth. In many situations depth of view extends no farther than across the street from the observation post, while the angle of view may extend as little as 100 yards to the right or left. Because of these limitations. Soviet forces are instructed to increase their number of observation posts. Further, in addition to the restrictions on the field of observation imposed by the density of structures in built up areas, another hindrance is created by the smoke resulting from burning buildings and the dust raised from bombs and

artillery shells. These of course are further reasons for establishing an additional number of posts.

Structural features of city warfare require that new selection requirements be used in designating locations for observation posts. The Soviets teach for instance that on streets or in areas of significant destruction, observation posts should not be situated in the remaining buildings, even if they are the only high structures in the areas and will provide good fields of observation. Such structures standing alone or in small groups in an otherwise devastated area, will only draw the attention of enemy forward observers and snipers. Rather, observation posts should be positioned among the ruins where their activity will be more difficult to detect.

For conducting observation along entire streets or large squares, Soviet teaching recommends the use of corner buildings. In another vein, the use of factory smoke stacks or other high structures is recommended for gaining information on enemy deployment in depth. However, it is cautioned that people manning such posts will obviously be subjected to increased risks.

During periods of darkness, built up areas extremely limit the effectiveness of observation. High buildings, narrow streets, smoke from burning structures, all tend to limit the amount of natural light existing during dusk, dawn and starry nights. During these periods, locations which were observation posts by day become mainly listening posts. Soviet

reconnaissance tactics teach that during these periods of limited visibility these posts are better located nearer the ground. If, during the day, observation posts were located in tops of high buildings, at night they should become listening posts and be located on lower floors. It is the Soviet contention that from positions closer to the ground, members of the listening post are better able to determine the direction of the sound and the distance to its origin.

Raids. According to Soviet teaching raids as a method of collecting intelligence information are more difficult in built-up areas than under normal terrain conditions. Thoroughness of preoperational organization and preparation are stressed more under city conditions than in other terrain areas. It is emphasized that the closeness of the enemy to Soviet positions, often only the width of a street apart, forces the enemy to maintain a high degree of vigilance. This increased vigilance on the part of the enemy significantly limits the possibility of successfully penetrating his lines. Among other conditions limiting the possibility for successful penetration are the limited approach routes to the objective. Where as in normal terrain, numerous avenues are usually available, the structural conditions of the city limit the selection of appropriate approach routes. Additionally, the large quantity of debris, ruins, concrete fragments and broken glass greatly increases the difficulty of silent movement toward the objective.

Ambushes. The conduct of ambushes as a means of collecting information in built-up areas is considered to be more difficult than their employment under normal terrain conditions. Ambush parties moving to selected sites are subject to the same limitations previously noted for raids.

However, once in position these same liabilities become advantages, as they indicate enemy movement and location. Whenever possible, emphasis is placed on the silent execution of the ambush. Once the enemy has been alerted to the presence of Soviet forces behind their forward positions, the withdrawal of the Soviet ambush unit becomes extremely difficult.

CONCLUSIONS

It is obvious from the sources used in writing this paper that the Soviet Army has drawn heavily upon its experience in World War II in formulating its present methods of tactical reconnaissance. Further, those particular methods used to counter or exploit the peculiarities of various terrain regions were also a result of experience obtained by Soviet forces operating under varied terrain and climatic conditions in WW II. However, although this WW II experience is one of the Soviet Army's major strengths, it may also be becoming one of its major weaknesses.

Soviet experience in WW II and the operational policies which have resulted from it provide Soviet forces with a sound set of basic principles for the conduct of tactical

reconnaissance operations. However, many changes have occurred in the field of tactical reconnaissance since World War II. These changes have occurred of course primarily in the technological field. These technological developments have been tested in Korea, Vietnam and on the battlefields of research and development. These technical advances were primarily developed to counter the new tactics of high mobility and vast dispersal of units on the nuclear battlefield. These tactical/technical developments include the use of the helicopter as an airborne observation post, and the use of aerial sensor platforms with radar, infra-red and photographic collection means to cover vast areas quickly and effectively. On the ground, such devices as pressure, acoustical and electronic sensors assist in collecting information on enemy movement. These means are but a few examples how technology has affected reconnaissance operations since World War II.

However, Soviet military theorists and tacticians when writing in the open press, do not discuss these developments in the field of combat intelligence. Rather, they continue to emphasize sound, basic reconnaissance principles such as patrolling. Although it is recognized that the basics are still important to reconnaissance operations, it is also recognized that the technological advances greatly assist reconnaissance units in collecting, processing and disseminating intelligence information. Why then have the Soviets not discussed the integration of these technological developments into their reconnaissance operations?

They may very well have or are now integrating the new technology into their reconnaissance operations. If this is true then another question arises--to what degree has this integration been conducted? Open Soviet sources regularly mention the use of night vision aids. However, information is not usually provided as to type of device or to what degree it improves performance. Additionally, sporadic reports are made concerning the use of the helicopter in an observation role. Again, however, no information is available on how these devices are integrated into the organization and operations of tactical reconnaissance. Additionally, no mention is made concerning the use of electronic ground sensors in a recon role. All these devices, in one way or another, would assist Soviet forces in overcoming or exploiting the various limitations of irregular terrain areas reviewed in this paper. Yet their utilization is not discussed. Their existence is not mentioned. Why?

One reason of course could be that the Soviet Army has studied and evaluated these devices and found them not to appreciably increase the effectiveness of reconnaissance operations. Thus, they have not been accepted for use in the Soviet Army. This conclusion is difficult to accept based on the success U.S. Forces have had with such devices. Another argument might credit the Soviet penchant for secrecy as an explanation for the lack of information on technical developments in tactical reconnaissance operations. However, the Red Army is proud of its modern equipment and attempts to

instill in its soldiers this sense of pride and confidence in Soviet military technology. Accordingly, although the requirements of secrecy are strictly adhered to during the development of new weapons, once developed and integrated into operational units, the existence of these weapons is eventually detected in the open press. It follows that a more realistic conclusion finds the Soviets presently testing the technical and operational application of these devices, finding them potentially advantageous, but encountering difficulty in their production and in their integration into present operational procedures. Further, it is probable that until one, unified methodology for their utilization is formulated, discussion of these devices will not appear in the open press. Thus, although we do not yet see these devices discussed in open sources, it is probable that the Soviets have them and are working on methods for their deployment.

In conclusion, we have seen in this paper that the Soviet Army has drawn considerably on its World War II experiences to formulate sound basic reconnaissance methods. Further, these reconnaissance methods contain certain procedures to counter or exploit the peculiarities of various terrain regions. Additionally, however, we see that the Soviet Army has probably been unable to fully integrate the technical advances of recent years into their reconnaissance operations. The failure to as yet fully integrate these advances into its

present day operations suggests that the Soviet Army has failed to fully exploit its technical reconnaissance capability under either normal or irregular terrain conditions. This Soviet failure further indicates, at least to this observer, that the contemporary Soviet tactical reconnaissance effort is less effective than that of the U. S. and will remain so over the next several years.

FOOTNOTES

1. V. I. Lenin, V. I. Lenin, Polnoe Sobranie Sochinenii, (Moskva: Gosudarstvennoe Izdatelstvo, 1963) V. 41, p. 144.

2. R. G. Simonyan, Razvedka v boevykh primerakh, (Moskva: Voennoe Izdatelstvo, 1971), p. 5.

3. P. Skuibeda, Tolkovyi slovar voennyx terminov, (Moskva: 1966), p. 375.

4. Ibid, p. 251

5. Ibid, p. 322.

6. Ibid, pp. 160-161.

7. Ibid, p. 51.

8. Ibid, p. 375.

9. R. B. Simonyan, Razvedchik v osobykh usloviiakh, (Moskva: Voennoe Izdatelstvo, 1975), p. 48.

10. Ibid, pp. 47-84.

11. Ibid, p. 66.

12. Ibid, pp. 115-122.

13. Ibid, pp. 5-38.

14. Ibid, pp. 130-160.

15. Ibid, pp. 169-187.

16. Ibid, p. 169.

17. Ibid, p. 173.

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